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EC67-648 How to Make and Use and Inexpensive Device to Check Milking Machines

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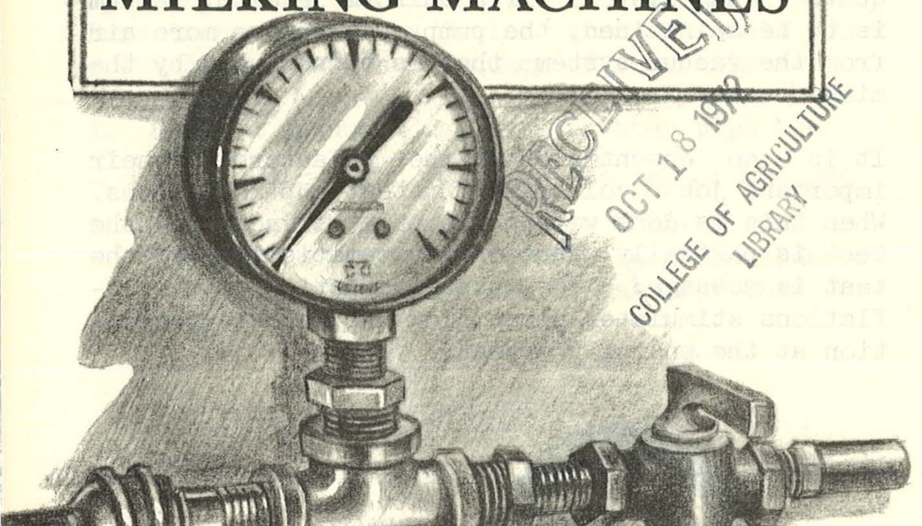
EC 67-648

How To Make And Use An Inexpensive Device to check MILKING MACHINES



EXTENSION SERVICE
UNIVERSITY OF NEBRASKA COLLEGE OF AGRICULTURE AND HOME ECONOMICS
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The vacuum applied to a cow during milking should be maintained at a constant level. This is possible only when a good vacuum pump of sufficient size for the number of milker units is attached to an adequate vacuum system. If a uniform level of vacuum is to be maintained, the pump must remove more air from the vacuum system that is being used by the milker units.

It is also essential that the pulsators do their important job of collapsing the teat cup inflations. When this is done well, the pull of vacuum on the teat is partially shut off systematically and the teat is massaged. The massaging action of the inflations stimulates blood flow and prevents congestion at the end of the teat.

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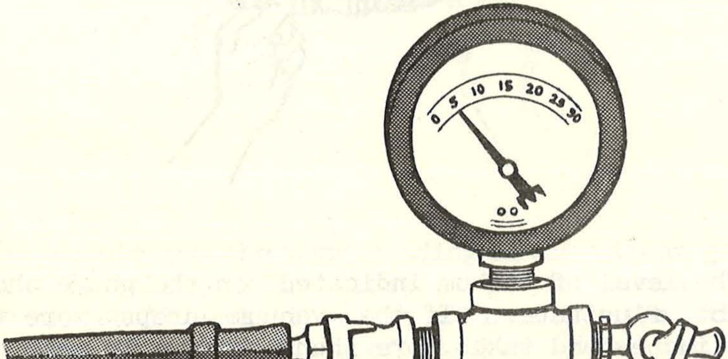
How to Make a Milker Analyzer

Data collected recently indicates that many milking machine installations in use do not maintain stable vacuum and many pulsators do not do their job well. You can check your equipment without spending a large sum of money for testing equipment. Here is how to make a device that will tell you a great deal about the adequacy of your milker:

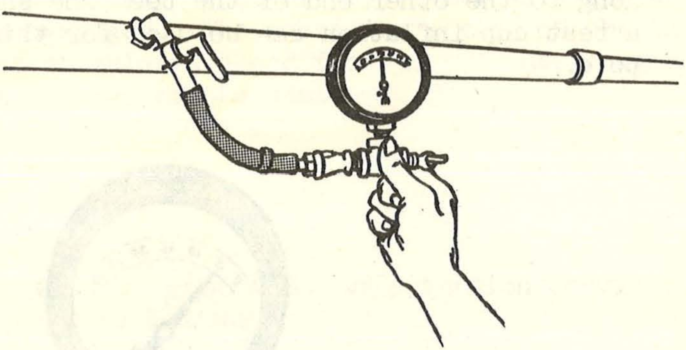
1. Screw a vacuum gauge into a water pipe tee.
2. Put an air-tight valve in one end of the tee.
3. Attach a piece of rubber air hose 5 to 6 inches long to the other end of the tee. The shank of a teat cup inflation can be used for this purpose.



How to Use an Analyzer to Check the Adequacy of the Vacuum Pump and Vacuum System

1. With the small air valve closed, attach the testing device to the stall cock farthest from the pump. The level of vacuum registered on the gauge when the stall cock is turned on should be the level recommended by the manufacturer of your milking machine.

2. Have someone watch the gauge while you milk three or four cows in that section of the barn.



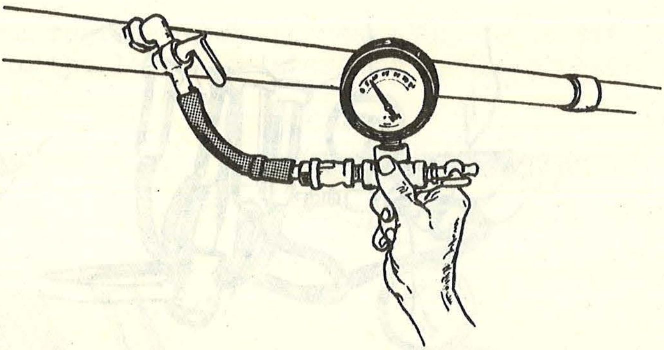
The level of vacuum indicated on the gauge should not fluctuate. If the vacuum drops more than 2 inches and takes more than 2 seconds to return to normal, the vacuum system is not adequate to do an efficient job of milking.

Test the Vacuum Line for Blockage

1. Attach your testing device to the stall cock nearest the pump.

2. Open the valve on the tester to allow air to enter the system and lower the reading on the vacuum gauge at least 6 inches.

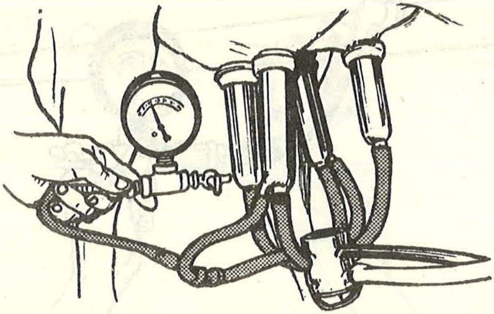
3. Without changing the valve, attach the tester to all stall cocks.



You should get the same reading on the vacuum gauge at all stall cock locations. If the vacuum drops at any stall cock, there is a block in the stall cock or in that section of the line. The solution to this problem is to flush out the vacuum line with an appropriate cleaning compound.

Action of Pulsators

1. Make a tee out of two 2-inch lengths of 5/8 inch copper tubing. (File a hole in one pipe. Solder the end of the other over the hole.)
2. Remove one of the pulsator air hoses from a teat cup shell.
3. Attach the tee to the air hose. Put another air hose on the other end of the tee and attach it to the teat cup shell.
4. With the air valve closed, attach your tester to the tee and start the pulsator.



The opening and closing of the pulsator will be registered on the vacuum gauge. The indicator needle should move from 0 to about the level of vacuum registered on the vacuum line. The gauge should show a free movement to both extremes of the amount of vacuum registered with no hesitation or sticking.

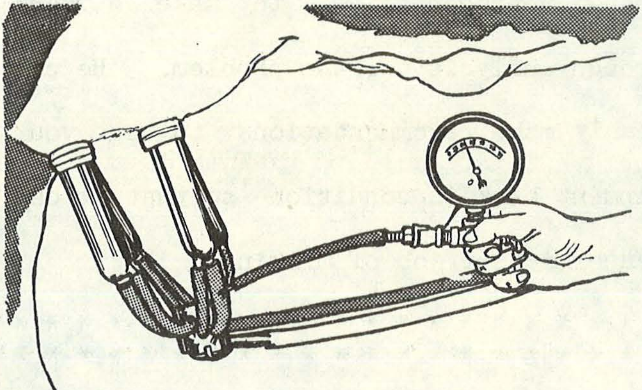
All air hoses on all pulsators in use should be tested.

Vacuum at Teat Cup Level

Have all milker units attached to cows when making this test:

1. Insert a hypodermic needle into the shank of a teat cup inflation just below the metal shell.
2. Attach your tester to the head of the needle. (Make sure the teat cup is making a tight seal at the base of the teat. Close small air valve on analyzer.)
3. Check all milker units or teat cup claws.

The vacuum registered on the gauge should be within 2 inches of the level registered on the vacuum line.



When making the test on pipeline milkers outlined on page 6, leave the analyzer attached to the needle during the entire milking of one cow. The vacuum should not drop much more than 2 inches lower than the level of vacuum registered on the vacuum line. (A small jar equipped with a rubber stopper with two short glass tubes inserted in the air hose between the needle and gauge will trap any milk pulled into the hose.)

If you find that your milking machine installation does not check out satisfactorily in one or more of the tests, get your milker company representative to make a more thorough analysis of the problem. He can probably make recommendations to put your equipment back in condition so that it can do an efficient job of milking.